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मानक

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“Step Out From the Old to the New”

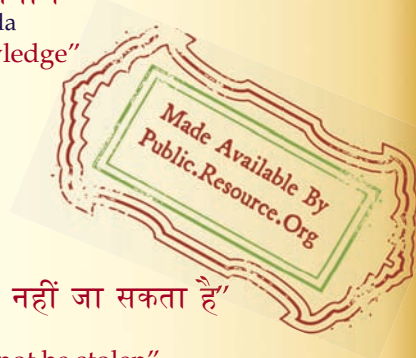
IS 402 (1990): Cold Chisels - Specification [PGD 6: Earth, Metal And Wood Working Hand Tools]



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Satyanarayan Gangaram Pitroda

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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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**IS 402 : 1990**  
**( Reaffirmed 1996 )**  
**REAFFIRMED**  
2003

**भारतीय मानक**  
**अताप छैनियाँ — विशिष्टि**  
**( तीसरा पुनरीक्षण )**

*Indian Standard*  
**COLD CHISELS — SPECIFICATION**  
**( *Third Revision* )**  

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*October 1990*

**Price Group 3**

## **FOREWORD**

**This Indian Standard ( Third Revision ) was adopted by the Bureau of Indian Standards on 12 March 1990, after the draft finalized by the Earth-Working and Metal-Working Tools Sectional Committee had been approved by the Production Engineering Division Council.**

**This standard was first published in 1952. In the first revision the various dimensions were given in metric units and a sampling plan and criterion for conformity was included. The second revision was taken up to modify the dimensions and shape of flat cold chisels so as to fall in line with current manufacturing practices. The title was also modified to read 'cold chisels' which had found increased use to designate the chisels of the type included in the specification. The option for manufacturing chisels with their shanks of different types of cross-section have also been included.**

**This revision has been taken up in order to include the nominal sizes 3, 5, 11, 14, 16 and 20 mm. Nominal size 12 and 28 have been deleted since not in demand. The dimensions have been aligned with manufacturing practices and hardness values for alloyed or carbon steel chisels have been separated for ease of manufacturers and users. While preparing this specification assistance has been taken from BS 3066 : 1981 "Engineer's cold chisels and allied tools" issued by British Standards Institution ( UK ).**

**AMENDMENT NO. 1 MAY 2002  
TO  
IS 402 : 1990 COLD CHISELS — SPECIFICATION  
( Third Revision )**

( Page 1, clause 3.1, table ) — Substitute the following for the existing table:

Nominal Size* $A \pm 1.0$	Width Across Flats or Diameter $B \pm 1$	Length of Blade $C \pm 5$	Cutting Edge Thickness $D \pm 0.5$	Overall length $l \pm 5$											Length of Conical Head, $E$	
				100	125	150	175	200	225	250	300	400	450	600	Min	Max
6	6.0	28	1.2	X	—	—	—	—	—	—	—	—	—	—	4	12
10	9.0	36	1.5	X	X	X	—	X	—	—	—	—	—	—		
14	10.0	60	3.0	X	—	X	—	X	—	X	—	—	—	—		
16	12.0	70	3.5	X	—	X	—	X	—	X	X	—	X	—		
20	14.0	80	3.5	—	—	—	—	X	X	X	X	—	X	—		
22	16.0	90	3.75	—	—	X	—	X	X	X	X	—	X	X		
25	19.0	100	4.0	—	—	X	—	X	X	X	X	X	X	X		
30	22.0	120	4.5	—	—	—	—	—	—	X	—	—	—	—		
32	22.0	130	4.5	—	—	—	—	—	—	—	X	—	—	—		
34	25.0	140	5.0	—	—	—	—	—	X	—	X	X	X	—		

\* Nominal size of chisel is its width of cut.

X Indicates overall length applicable.

( BP 06 )

Reprography Unit, BIS, New Delhi, India

# Indian Standard

## COLD CHISELS — SPECIFICATION

### ( Third Revision )

#### 1 SCOPE

1.1 This standard covers the dimensions and other requirements for the following types of cold chisels intended for cold cutting of metals by hand use only:

- a) Flat cold chisels;
- b) Cross-cut cold chisels;
- c) Diamond-cut cold chisels; and
- d) Half-round nose cold chisels.

#### 2 REFERENCES

2.1 The following Indian standards are necessary adjuncts to this standard:

#### IS No.

841 : 1983

1570 : 1961

1570

( Part 2 ) : 1979

2500

( Part 1 ) : 1973

#### Title

Steel hammers ( *second revision* )

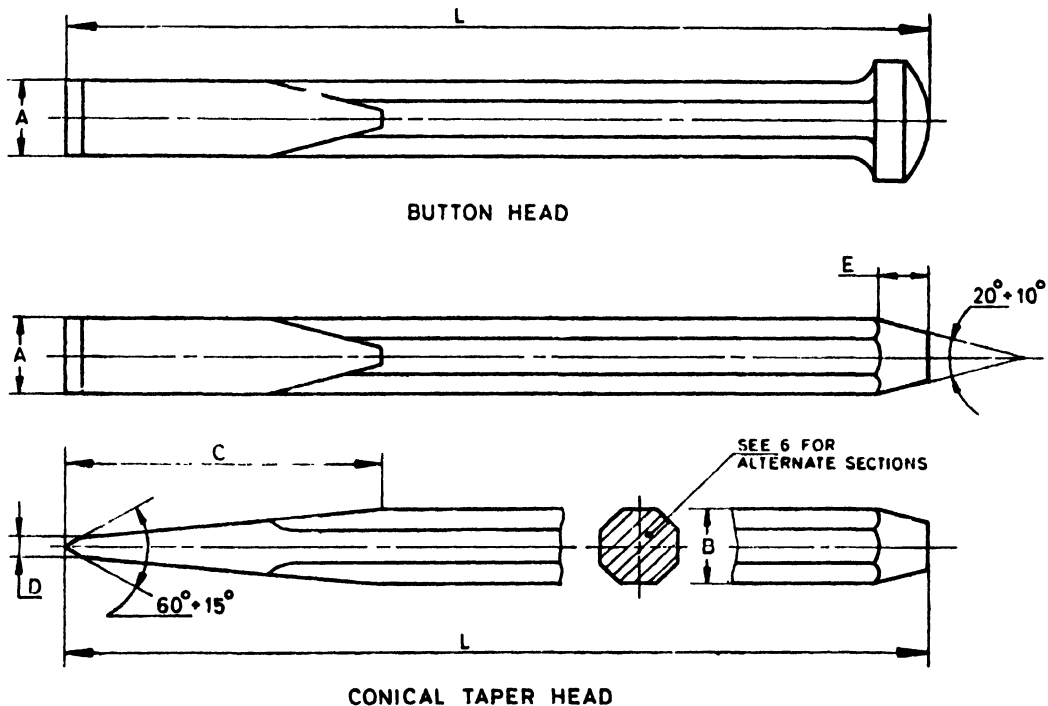
Schedules for wrought steels for general engineering purposes

Carbon steels (unalloyed steels) ( *first revision* )Sampling inspection tables : Part 1 Inspection by attributes and by count of defects ( *first revision* )

#### 3 DIMENSIONS

##### 3.1 Flat Cold Chisels

All dimensions in millimetres.



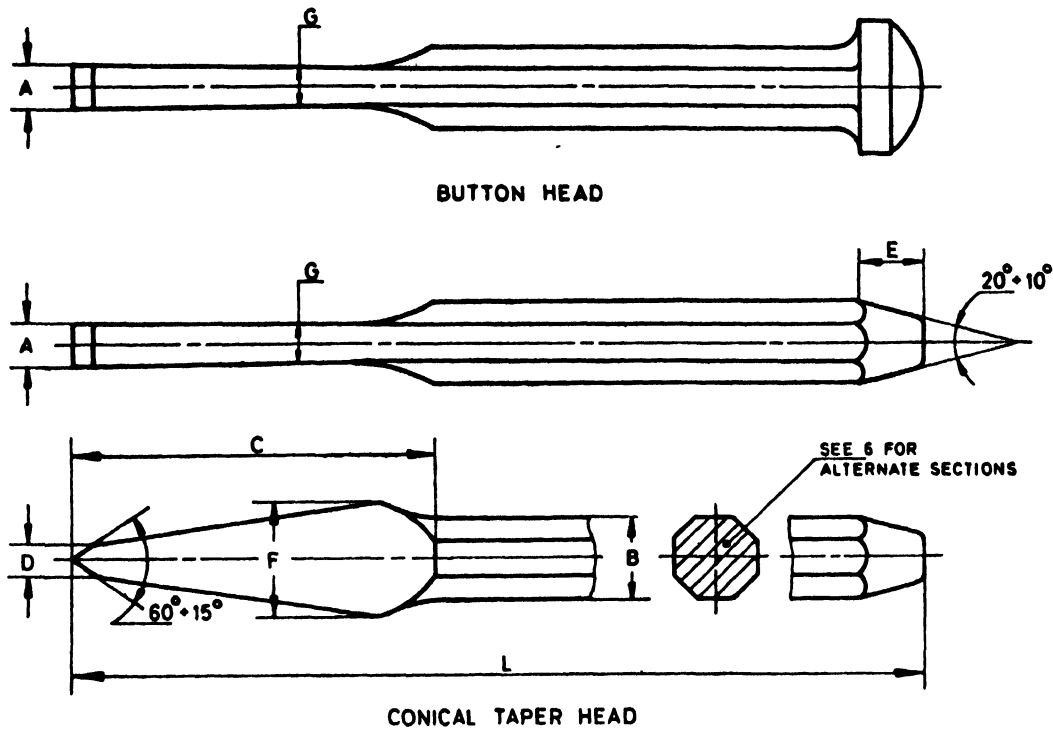
CONICAL TAPER HEAD

Nominal Size* $A \pm 1.0$	Width Across Flats or Diameter $B \pm 1$	Length of Blade $C \pm 5$	Cutting Edge Thickness $D \pm 0.5$	Overall Length $L \pm 5$											Length of Conical Head $E$	
				100	125	150	175	200	225	250	300	400	450	600	Min	Max
6	6.0	28	1.2	x	—	—	—	—	—	—	—	—	—	—	4	12
10	9.0	35	1.5	x	x	x	—	x	—	—	—	—	—	—		
14	10.0	60	3.0	x	—	x	—	x	—	x	—	—	—	—		
16	12.0	70	3.5	x	—	x	—	x	—	x	x	—	x	—		
20	14.0	80	3.5	—	—	—	—	x	x	x	x	—	x	—		
22	16.0	90	3.75	—	—	x	—	x	x	x	x	—	x	x		
25	19.0	100	4.0	—	—	x	—	x	x	x	x	x	x	x		
30	22.0	120	4.5	—	—	—	—	—	—	x	—	—	—	—		
32	22.0	130	4.5	—	—	—	—	—	—	—	x	—	—	—		

\*Nominal size of chisel is its width of cut.

3.2 Cross-Cut Cold Chisels

All dimensions in millimetres.

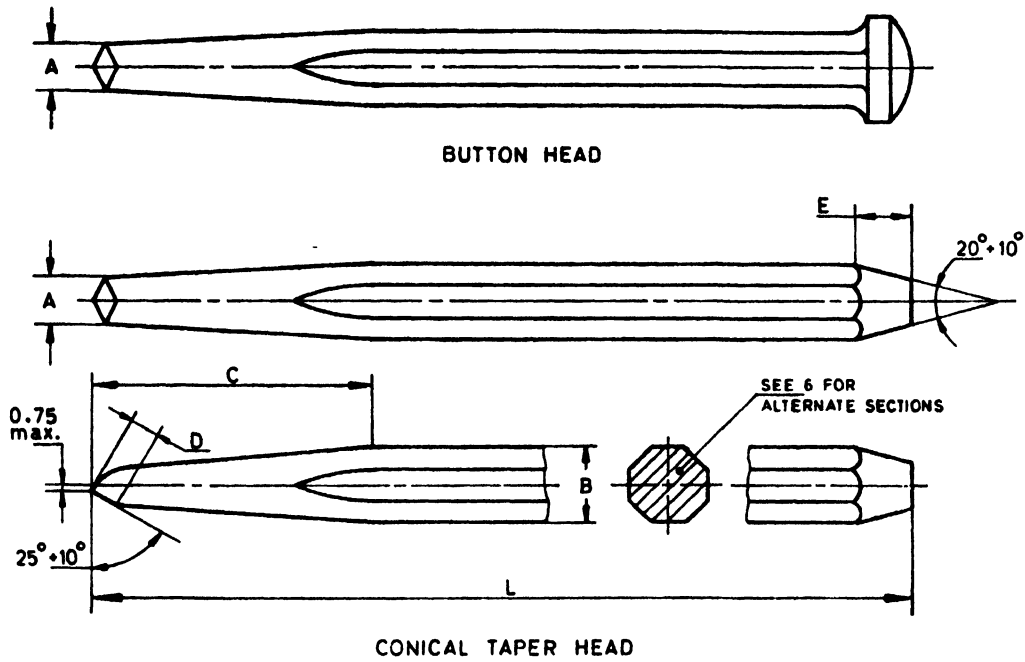


Nominal Size* $A \pm 1.0$	Width Across Flats or Diameter $B \pm 1$	Length of Blade $C \pm 5$	Cutting Edge Thickness $D \pm 0.5$	Overall Length $L \pm 5$	Length of Conical Head $E$		Blade Depth $F$	Blade Root Thickness $G$
					Min	Max		
3	6	40	1.5	100	4	12	10	2.4
5	10	60	1.5	125			14	3.6
6	13	70	2.5	150			19	5.0
8	16	80	3.8	175			22	6.0
10	19	85	4.0	200			25	8.0
11	22	90	5.0	225			26	11.0
14	22	95	5.0	225			28	11.0
16	25	100	6.0	250			31	14.0

\*Nominal size of chisel is its width of cut.

### 3.3 Diamond-Point Cold Chisels

All dimensions in millimetres.

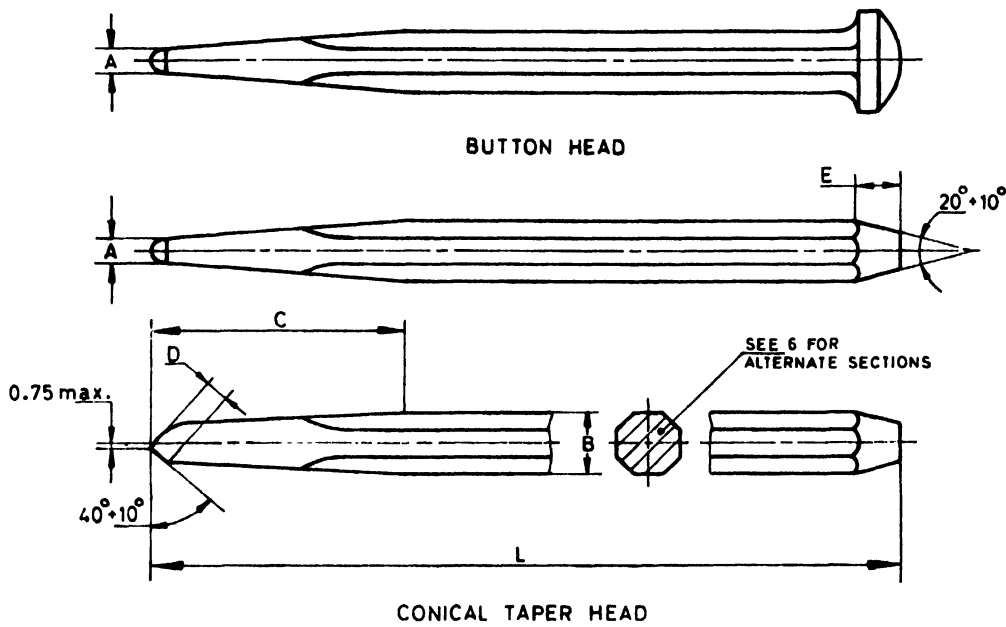


Nominal Size* $A \pm 1.0$	Width Across Flats or Diameter $B \pm 1$	Length of Blade $C \pm 5$	Cutting Edge Thickness $D \pm 0.5$	Overall Length $L \pm 5$	Length of Conical Head E	
					Min	Max
3	6	40	4.0	100	4	12
5	10	50	5.5	125		
6	13	55	7.0	150		
8	16	60	10.0	175		
10	19	65	11.0	200		
11	22	70	13.0	225		
14	22	75	14.0	225		
16	25	80	17.0	250		

\*Nominal size of chisel is its width of cut.

3.4 Half-Round Nose Cold Chisels

All dimensions in millimetres.



Nominal Size* $A \pm 1.0$	Width Across Flats or Diameter $B \pm 1$	Length of Blade $C \pm 5$	Cutting Edge Thickness $D \pm 0.5$	Overall Length $L \pm 5$	Length of Conical Head $E$	
					Min	Max
3	6	40	4.0	100	4	12
5	10	50	5.5	125		
6	13	55	7.0	150		
8	16	60	10.0	175		
10	19	65	11.0	200		
11	22	70	13.0	225		
14	22	75	14.0	225		
16	25	80	17.0	250		

\*Nominal size of chisel is its width of cut.

4 MATERIAL

45C8 and 55C4 conforming to IS 1570 ( Part 2 ) : 1979.

4.1 Chisels shall be manufactured from suitable quality carbon or alloy steels, meeting the requirements laid down in 5 and 9.

4.2 Chisels shall not be manufactured from free cutting or semi-free cutting steels.

*Suitable Example:*

Steel designation T80 with sulphur and phosphorus content of maximum 0.05% each and T55Si2 Mn90Mo33 of schedule VI of IS 1570 : 1961  
or

5 HARDNESS

Cutting edge hardness 550 HV to 650 HV (  $\approx$  52 HRC to 57 HRC )  
Head hardness ( conical/button ) 345 HV to 450 HV (  $\approx$  35 HRC to 45 HRC )

### 5.1 Hardness Zone at the Cutting Edge

The chisel cutting edge shall be heat treated to achieve the hardness specified at 5 over a minimum distance from extreme cutting end as given below:

Nominal Size mm	Hardness Zone, Minimum Distance from Cutting End mm
Up to 6	13
10	
14	16
16	18
20	19
22	
25 and over	25

### 5.2 Hardness Zone at the Head

The chisel head shall be heat treated to achieve the hardness specified in 5 over a minimum distance of 25 mm from the extreme end of the head.

## 6 MANUFACTURE

6.1 The chisels shall be forged to shape in one piece from hexagonal, octagonal, square or round bars. The cutting edge and head shall be suitably hardened, tempered. The cutting edges shall be ground ready for use. The chisels shall be straight, free from rust, flaws, seams, cracks, brittleness and other defects.

## 7 PRESERVATIVE TREATMENT

7.1 The body and the ground portion of the chisels shall be given a suitable anti-corrosive treatment.

## 8 SAMPLING

8.1 Unless, otherwise agreed to between the buyer and the seller the procedure given in IS 2500 (Part 1) : 1973 may be followed for sampling inspection. The sampling plans for various characteristics shall be according to 8.1 and 8.2.

8.2 For dimensions and manufacture, sampling plan with inspection level I and acceptable quality level (AQL) of 1.0 percent as given in Tables 1 and 2 of IS 2500 (Part 1) : 1973 shall be followed.

8.3 For hardness and tests, sampling plan with inspection level I and acceptable quality level (AQL) of 1.0 percent as given in Tables 1 and 2 of IS 2500 (Part 1) : 1973 shall be followed.

## 9 TESTS

### 9.1 Flaw Test

The chisel shall be tested by the magnetic or any other recognized flaw detection method, or, if the necessary equipment is not available, the cutting edge of each chisel, while resting on a lead block shall withstand, without fracture or damage, 20 light blows with a 200-g hammer if the width across flats, *B* of the chisel is 12 mm or less and with a 500-g hammer for larger sections.

### 9.2 Performance Test

The chisels, held firmly and vertically with the cutting edge downwards on a mild steel block having a thickness of 25 mm *Min* and of hardness 200 to 215 HB, shall be given 20 blows on the head with a 500-g hammer in the case of chisels of width across flats up to and including 12 mm and with a 1-kg hammer for larger sections. For hammers, reference may be made to IS 841 : 1983. On completion of the test, the chisel head shall not become mushroomed; the cutting edge shall not show any signs of damage or loss of cutting efficiency and the shank shall not show any deformation.

## 10 DESIGNATION

10.1 The chisels shall be designated by the type, nominal size, length, section (*H* for hexagonal, *O* for octagonal, *S* for square, *R* for round) and the number of this standard.

*Example:*

A flat cold chisel of nominal size 20 mm, length 200 mm and of hexagonal section shall be designated as:

Flat Cold Chisel 20 × 200-H, IS 402

## 11 MARKING

11.1 Each chisel shall be clearly and legibly stamped with the nominal size, indication of the source of manufacture.

## 12 PACKING

12.1 The chisels shall be securely packed in suitable packing cases of a size convenient for handling in transit. Each type and size of chisel shall be separately packed, and no package shall contain more than one type of chisels.

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#### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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